Field Notes + Data

Colorado, Utah, Idaho
Montana + Wyoming

July - Aug. 1973

ESB + DOB.

Barghoorn, E.S. (Dr.)
The Biological Labs.
16 Divinity Ave
Harvard University
Cambridge, Mass. 02138

July 27 Left Boston ca 1:45 PM - ~~p~~ plane late. Arrived Denver about 3:30 PM.
Spent overnight with Dick Scott

July 28 Left Denver about 11 AM. Colorado Springs → Florissant, overnight at Thunderbird Motel - Florissant

July 29 Entire day in Florissant Area. Visited The new temporary Natl Monument Info center on Florissant - Cripple Creek Rd. In charge Andrade and Henry Tanski cordial welcome. grant specified stamps on Baber property.

Overnight in Florissant again

July 30 Lv Florissant 8 AM. - across So Park abortive effort to go over Weston Pass

Leadville - Climax
Overnight at Lucky (2) Motel on rd Leadville - Climax (Rt 24) excellent place

July 31 Heavy frost this AM at Lucky 2 Motel
- this is in a deep valley 3 mi N. of Leadville
Left 9 AM. - over Independence Pass
Aspen - Maroon Lake - Maroon Bells!
- People.
Down to Grand Junction by 8:30
Mileage 228

Aug 1 Camped at Devils Canyon - Manti -
La Sal Forest near Blanding
Utah. Down Dolores Canyon this AM
- collected near ~~Utah~~ Naturita -
across Paradox Valley.
mileage
225

Aug 3 Left Rimrock Motel, 3 mi east of
Torrey Utah 8 AM
Mileage
yesterday
222

Aug 4 Overnight at ~~Alta~~ Alta Motel, Logan Utah
308 This AM - collected Araucarioxylon wood in
wash 3 mi W. of Torrey Utah.

Movie Film Record

Roll #1 July 28, 73 to July 29, 73	Colorado Springs area – garden of the gods Pikes peak – west of Woodland Park Field Station – Florissant Monument Pikes Peak Fossil stump in situ – to end of Roll #1
Roll #2 ends 7/30	Road to Cripple Creek Cripple Creek last few feet from Florissant west to Pack Range from road to Fairplay.
Roll #3 7/30	Starts Mt Harvard from South Park – various scenes en route up Weston Pass Rd – Leadville – climax etc. Rainbow scene Ends AM 7/31 at Lucky 2 Motel
Roll #4 7/31	Begins en route Leadville area to Independence Pass – Aspen area to
Roll #5 8/2	Begins Paradox Valley (?) ends on bluff above Colorado R. near "Hite"

Aug 5 overnight at Ranger Motel, W. Yellowstone
Rained or threatened much of the day.

Aug 6 Lewis & Clark Motel, Three Forks Mont.
Bozeman Lake Beds.
Mr Lyle Williams of Three Forks took us to collecting sites.

Roll #6 Begins overlooking Colorado River
8/2 above "Hite"
Various along arroyo near
Torrey Utah
Bozeman Lake Beds 3 mi south
of Logan Mont.
ends 8/7 – DD collecting
in Bozeman Lake Beds.

Roll #7 Begins Trail up to Gallatin Fossil
Forest – ends on way down trail

Roll #8

Aug 5 — Overnight at Ranger Motel - W. Yellowstone. Cold + rainy

276 miles yesterday

Drove to Three Forks. Collected with Lyle Williams on Bluffs above Madison River

Aug 6 — At Lewis + Clark Motel tonight

Spent most of day collecting in Bozeman Lake Beds south of Logan. Returned to W. Yellowstone

Aug 7 — Climbed to the ridgetop above the Gallatin Fossil Forest - ca 8 miles + up 2000'.

Dinner cookout with Dick Lee.

Collected about 15-16 specimens. Overnight W. Yellowstone at Ranger Motel

Aug 8 → Left W. Yellowstone

8

7/30/73 Lv Florissant mileage 000.0
left 7:45 A.M. Gas tank full

35 mm Film Record

7/29/73 to #11 Fossil Forest logs on Baker property - huge stumps in situ (one frame wasted

7/30 { #11 - Top of Weston Pass
12 - Rainbow - both Seadwells and Alumni

7/31 → to #19 Maroon Bells (5? frames

8/ 20 + 21? outcrop of Dakota coal or of Hooks Mills

8/~~4~~6 # 23 = Bozeman Lake Beds 2 mi. S. Logan Mont.

8/7 # 24 - Gallatin Fossil Forest

6000 acres conserved — now secure.

Petrified Forest — 3 miles South of Florissant on Cripple Creek Rd

Singer land — Petrified Forest Land still owned by Singer

Pike Petrified Forest —
2½ - 3 mi on road to Cripple Creek — on left side of Road — 1 Hand Tangly ?

Dr. Paul Stewart
Waynesburg College Penna.
now 81 - feeble
collected here until 2 yrs ago
Prof. Robt. Carmen in charge now

Zane Harper — Justice of the Peace
↓
Stall Ranch

Harold Eugene
June Clare - P. O. Master, Florissant

Stole
Stolt Farm

go past school house
on #24 - [illegible]
at [illegible]

Field Notes

73-1 Baker Property, Florissant Colo. (C. 1/3 mi NW of Temporary monument Site - US Park Serv.) head qts
c. 10 pieces foss. wd. coll. by ESB from 3 part stump. (slides + movies taken). 7/29/73

73-2 Same location as above. 2 samples coll. from [illegible] 7/29/73

73-3 [illegible] wood

73-4 [illegible] 7/29/73

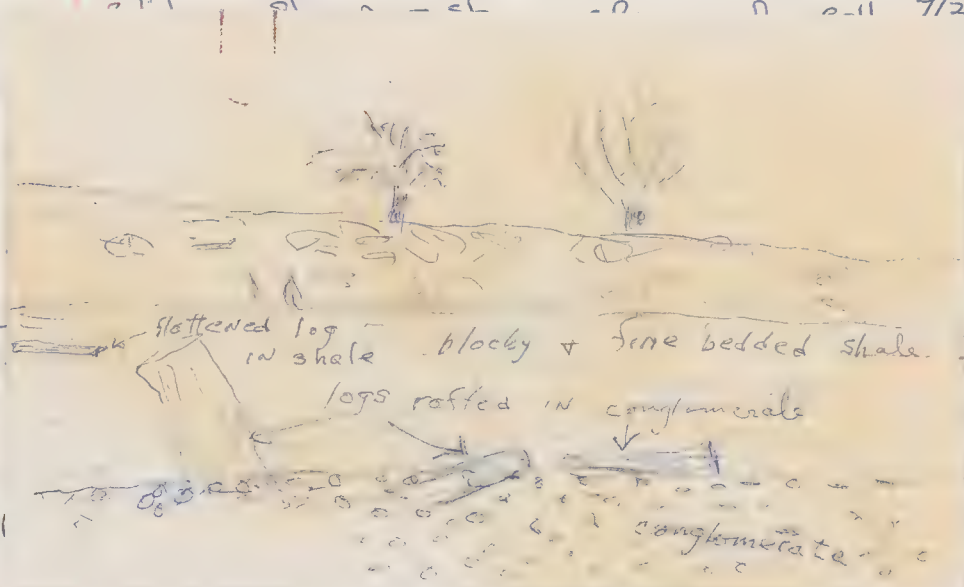
73-5 [illegible] 3

73-6 [illegible] nt Hts

73-7 Slag - Leadville, Colo. 7/30/73

73-8 ore - Climax (AMAX), Colo. 7/30/73

73-9 Mahogany Ledge fr. Rd to Pilot Plant Bur. of Mines Oil Shale Experimental Proj. near Rifle, Colo. 7/31/73 samples Rd filling
Current name: US Dept Interior Anvil Points Oil Shale Facilities



Field Notes

73-1 Baker Property, Florissant, Colo. (C. 1/3 mi NW of Temporary monument site - US Park Serv.) c. 10 pieces foss. wd. coll. by ESB from 3 part stump. (slides + movies taken) 7/29/73

73-2 Same location as above. 2 samples coll. from solitary stump. - shows clear opal. coll. 7/29/73 ddb

73-3 Same location as above. Sm. sample fibrous wood unsil. from solit. stump. 7/29/73 ddb. in foil.

73-4 Stoll Farm, Florissant Lake Bed Sediments. 7/29/73 ESB & ddb.

73-5 1st rd right aftr Stoll Farm heading W. Choc. brn seds. for pollen study. Few plt. frags. 7/29/73 Rd. ~~ends~~ goes to Vally Hi Estates + Florissant Hts

73-6 Granite c 4.6 miles N by W of Cripple Creek on Rd. to Florissant. Fresh rd. cut. Lg xls.

73-7 Slag - Leadville, Colo. 7/30/73

73-8 ore. - Climax (Mo.), Colo. 7/30/73

73-9 Mahogany Lodge fr. Rd to Pilot Plant Bur. of Mines Oil Shale Experimental Proj, near Rifle, Colo. 7/31/73 [illegible] filling

Current name: U.S. Dept Interior Anvil Points Oil Shale Facil. Thos

73-10 Dakota (Lower) 4.1 miles from Town Hall E of Naturita, Colo. on Rt. 145, near junction w. 90. On N side of rd. 8/1/73. Close to U. Morrison. Coal + arkosic shale w. plt. fossils (ark. sh above coal)

73-11 Uranium sample? Beyond Soldier Grave. also black wood-like samples. 1 mi E of "Blue Notch Rd" (Mine Rd -) also Petroleum Pump W. of Bl. N. Rd".

Location: 60 mi (by Rd marker) SE of Hanksville on Rt. 95. 8/2/73

73-12 coal samples ddb.

73-13. W. side of Town Sign "Torrey" (Little Holland Trading Post) Rt. 24. Pass Fremont River (Rd crosses). Pass Teasdale Ranger Station. Left on Teasdale Rd. 6.35 miles from Trading Post. Turn off c. 100 yds to right from 24 ie South fr. 24. Signs in distance say Teasdale, Grover, Escalante. Follow tracks into wash - then go up wash or up stream if H_2O present

73-14 - Fossil Wd Three Forks, Mont. 8/5/73
Trip w. Lyle K. William
Bogeman Lake Beds

73-15 Rd cut - 1 piece wd.
Same section as 73-16 at

73-16 Wd, Manhattan / Mont. Quad.
T 2N R 2E Sect. #10
West slope below tuff beds
(coarse tan grey tuff zone)
2.3 miles south of turn off I-90
on Rd. from Logan to Buffalo Jump.
After lunch - 300 yds further S.
Next 2 ridges th. run into West.
More wood!

73-17 Piece in pasture E. side of Rd.
T 1N R 2E Sect #22, "Junk" FSB

73-18 Gallatin Fossil Forest - Spec. Creek
N of Creek on spur of ridge between 2
tributaries.
[see H. N. Andrews - Gallatin Fossil
Forests -]

9-2-74 { Collections made on East Bluff Madison River by ESB, Dick Scott, Dorothy Barghorn + Doris Scott

1. 74 - 1 BLB. cut log - center N. margin
Manhattan Quad ~~Sect. 3~~ T 1 S
~~R 2E~~ (1)

2. 74 - 2 BLB Log (large) in place (1)
Manhattan Quad center of ~~N edge~~
~~& Sect 3 T 1 S R 2E~~

3. 74 - 2a BLB - 15' east of # 2 specimen - same elevation (~~[illegible]~~ organized)

4. 74 - 3 BLB - Conifer log ("in place")
100 yards S. of # 2

5. 74 - 4 - BLB - Doris large log (in place)
100 feet east of # 74-3-BLB

74-4a-BLB-Large piece 10' below Doris' log.

74-5-BLB - weathered "Early Tertiary"?
pebbles of wood on float on spur of locality 74-2-BLB.

74-6-BLB - fragment with desilicated end - float near + above 74-2-BLB

74-7-BLB - wood on float - same locality as 74-6-BLB

(1) SW 1/4 of SW 1/4 Sect 23, R 2E, T 2S, Manhattan Quad

74-8-BLB — float wood from general area as first seven numbers above list

74-9-BLB - Pollen sample from Brown silt 40 #100 below top of bluff, $\frac{1}{4}$ mi S of 1-8 location - on topo sheet

74-10-BLB - Random chips from RAS Traverse of gulleys $\frac{1}{4}$ - $\frac{3}{4}$ mi to S of Locality # 2 (William's in place log.

74-11-BLB. - William's "different wood" locality ± 1 mi N of #2. Here there is a mixture of "young" - opalized wood - Brewer type, with more conventionally silicified, partially crystalline wood. This may represent hydrothermal alteration of the "young wood" - Robinia seems to be present; Some pieces show evidence of both state at opposite ends.
NW $\frac{1}{4}$ Sect 22, T 1S, R 2E, Manhattan Quad

9/3/74 Collection in area of Robinson's Field
Loc. 53-R-159, NW Corner, Three Forks, Mont. Quad.

74-12-BLB. West edge (as shown on Three Forks Quad) of Sect 8, at S edge of Sect 8, R 2W, T2N. Fibrous wood in place. Black vitreous areas, fibrous part in or near center - some what pinkish or buff - black vitreous areas squeezed into gritstone (gray fine conglomerate). Fiber-glass texture unevenly distributed through the specimen.

74-13-BLB. Random wood samples of float along north face of low ridge extending E of road = Robinson's Field Loc 53-R-159. Wood in place in gritstone, but no coarse congl. seen (1)

Climing Arrow = no Robinson

74-14-BLB. Doran's Wheat Field. NW 1/4 Sect 15, T2N, R 2W. Dicots + conifers all float. The bulk of the material comes from one N facing hillside at the extreme NW corner of the section. The woods occur near the highest topo. levels; few woods found more than 200 yds S of the NW Corner of the section.

Possible Madison Slotts "let down" on Cl. Arrow

(1) Both glassy "Brewer" type and older, more crystalline wood present along this ridge.

Arnie Nimmack
RR2,
Cardwell, Mont 59721

9/4/74 Nimmack Ranch.

74-15-BLB. Nimmack ranch. N facing slope. 0.6 m S, 0.5 m. SW of a point 0.1 mi E of ranch house.

3 Pieces from large log: $9\frac{1}{2}'$ long, 2'+ in diameter, 3± big blocks - 10-20' uphill. Log probably flattened slab from larger tree. Blocks probably from this log, but no preset. log prostrate, long axis down slope. Devoid of transverse checks

74-16-BLB. Coniferous chips from area ± ½ m E of log at Loc #15. 1 dicot piece present upslope 100' from #15. No "Brewer" type preservation seen.

74 ESB JI - bedded chert & Ls (acid test) black beds dipping ca 70° - 5.8 mi. west Nimmack Ranch - 300 yds south of I-90. Quarry for road metal

9/5-/74

74-17-BLB: 1st Bench of volcanic ash ¼ mi E of Jorgenson ranch entrance, 1 mi S of Buffalo Jump - Manhattan, Mo. Quad NE¼ Sect 3, T 1S, R 2E Manhattan Quad

74-18-BLB - 2nd Bench of volcanic ash up as above for 17

74-19-BLB: Float "Brewer" type wood from 2 N facing gulleys tributary to main gulley opposite entrance to Jorgenson Ranch - ½ mile E of entrance & 100+ ft above road level. Loc data as for #17 (Check Range on sheet)

74-20-BLB - Miscellaneous collections by Lyle Williams obtained from east bluff of Madison River - Brewer area

7000
6824
176
15
11.5) 176.0
10
16
57.5
35

6824
6614
210
16
12.6) 210.0
126
840
756
14

6614
6466
1
148
1

10:00 AM Aug. 31, 1974 6466 mileage.
gas Aug. 31 10 gals. (57.94) $5.80 Laramie
6614
gas 6824 12.6 (58.4) 7.35

Sept 1 Lv. Ferson, WYO 6864. 8:AM
gas 7000 11.5 gal. 61.94 $7.15 - Jackson Hole
Arrived 7236 at Three Forks 6:00 pm
Sept 2 gas 7239 Three Forks AM 14.3 gals. 58.9 $8.40
7263 returned fr. field w. Mr. Williams

Sept. 3 7264 - Lv. Three Forks Crossed over interstate 90
7270.1 - Turn off main rd to County Rd. (left) Heading West (2 miles)
7272.1 Turned rt (North) After 1 mile
7273.0 rd bends west. (No choice of rds thru) (Should go even 5 miles then stop + go to bluffs.)
(going ~~thru~~ thru Climbing Arrow Fm. after 2 miles)
7276.4 - fork in rd. we stay on left fork
7276.8 entrance to Silver Sage Ranch on rt (North)
7278.3 - fork in rd by delapitated shacks. Took left fork.
7278.9 drove into wheat field.
collected east + west on foot. Locality 12 - fibrous wd.
Met Mr. Doran
7280.5 Drove thru open gate, Best collecting east of rd just over hill top + down gentle gully of stubble field
7291.0 Back to Highway 287
91.9
9/10 mile from Interstate 90 to turn off of 287

14 miles fence = $10,000

Sept. 4

Three Forks Junction Rt. 287 + Rt. 10 W on 10
7300.6 (following Jefferson River)
7305.1 - Turn R (N) on to Milligan Canyon Rd.
wrong rd. {7311.6 - Rd to left (S) } Subtract 2 miles
{7313.6 back to Milligan Canyon Rd } wrong road
~~Arnold~~ Arnold (North Slope) RRt. 2
7317.2 - Nimmack (Ranch). Cardwell, Mont. 59721
7317.3 Turn S from Rd 1/10 mile E from Ranch
9.6 1.45 house on dirt rd which bordars wheat field
7317.9 bear WSW dirt tracks along hills
8.4 stopped at end of tracks - where they fork. Big conifer log - 9'6"
Photo of Mr. Nimmick + dogs on log -
" Spike dog
Big logs still in place - 12

Stopped a Quarry + collected black bedded ls (looks like chert)

~~7343.0 Lving Interstate 90 Starting E on~~
~~7346.0 Milligan Canyon Rd,~~
7346.0 - Old
349.6

Turn off I 90 - S - Rd. to Buffalo Jump

Sept. 5 Thurs.

~~Hen~~ Manhatten Quad

Beginning mileage from benchmark 4386 : NE corner Sect 10 ; Township 1 N ; Range 2 E

Beginning = 7371.1 (on top on natural gas line) ~~Turn off~~ on rd to Buffalo Jump.

7/10 mile to R.M. Crowley Ranch.

7376.1 - Arrived at Madison Buffalo Jump Archeological Site - State monument

7376.55 Lv. Monument

7377.35 Jorgenson Ranch

Jeep Mr Williams. 7760.1 - starting at bench mark near old town dump

7383.5 Lv. in entrance of dirt tracks where Mr. Williams took us with jeep. Driving back to town, (Rd. to Monument)

7385.1 - back to I 90.

7391.3 7391.3

7383.5

7.8

* 7.8 miles out from town to where Mr. Williams took us up in jeep.

Organic Molecules - The Prelude to Life
Cosmic Origin
Terrestrial Origins

The Enigmatic Transition - The Energy Bottleneck - Pirie ⧗ funnel
The Earliest Life -
Evidence - Direct + Indirect

The Continuing Story +
The Biosphere in Balance

The Curious Kinetics of Evolution
Stagnant "Evolutions"
Spurts in Evolution

Innovations in Evolution:
Pro → Eu Karyotic System

The Momentum of Evolution -

The "Rates" of Evolution

"Plant" "Animal"

Organisms

Obvious that Botanists + Zoologists dont "relate"

— For more "animal" species than "plant" species —
1,000,000 vs 1/3 million

- dilemma — do animals evolve faster than plants
whats wrong?

Obviously "plants" have existed far longer than animals

Mesozoic Colo. Plateau
SE Utah Section

~~Location~~

Tertiary	
	Mesa Verde
Cretaceous	Mancos
	Dakota — Burro Canyon
	Morrison { Brushy Basin Member, Salt Wash "
Upper J	Bluff SS
	Summerville fm.
	Curtis fm
	Entrada SS.
Middle	Carmel fm
	Navajo SS.
	Kayenta fm
	Wingate
Upper Tr	Chinle {
	Shinarump cgl
Middle & Lower	Moenkopi fm.

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